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GUPTA, PARUL H	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/652,491	Applicant(s) YANG ET AL.	
	Examiner Parul Gupta	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-14 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-10, and 12-14* is/are rejected.

7)☐ Claim(s) *11 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 2, 4-14, and 16 are pending for examination as interpreted by the examiner. The amendment filed on 9/29/06 was considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa, US Patent 4,858,219, in view of Wang et al., US Patent Publication 2003/0099177.

Regarding claim 1, Yoshikawa teaches an automatic power calibration method comprising: obtaining two or more pairs of first reference signal values, or values of reference signals of first channel signals (shown as coming from element 41 of figure 1), which are input to an optical emission unit driving unit ("light source drive circuit" of column 3, line 49), the optical emission unit driving unit driving an optical emission unit ("laser diode" of column 3, lines 45-46), and first output signal values obtained by measuring outputs of the optical emission unit resulting from the first channel signal values, using an optical detection unit ("photodetector" of column 3, lines 46-47); obtaining two or more pairs of second channel signal values (shown as coming from element 8 of figure 1), which are input to the optical emission unit driving unit, the optical emission unit driving unit driving the optical emission unit, and second output

signal values obtained by measuring outputs of the optical emission unit resulting from the second channel signal values, using the optical detection unit. Yoshikawa does not but Wang et al. teaches the method that uses storing the pairs of signal values obtained in the obtaining the first reference signal values and the obtaining the second channel signal values (done in 102 and 104); determining the first reference signal value S1 and the second channel signal value S2 from the stored signal values (105), so as to record information on a disc inserted in an optical recording device; and inputting in the optical emission unit driving unit the first channel signal value S1 and the second channel signal value S2 to drive the optical emission unit (done by the difference of the two as shown in 108), wherein the obtaining two or more pairs of first and second channel signal values are operations obtaining the pairs of signal values within a period where a relation between the signal values exhibits a linear function (the use of developing linear functions is given in figure 5 and shown in figures 6 and 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of the given relationships and functions that utilize memory as taught by Wang et al. into the system of Yoshikawa. This would serve the purpose of increasing the stability of output laser power control (paragraph 0013 of Wang et al.).

Regarding claim 6, Yoshikawa teaches in figure 4 an automatic power calibration apparatus for an automatic recording apparatus, the apparatus comprising: an optical emission unit (1); an optical emission unit driving unit (44) outputting a signal driving the optical emission unit in response to two or more first channel signal values (from W.DATA) and/or two or more second channel signal values (from ADJ.IN); an optical

detection unit detecting two or more first output signal values and two or more second output signal values corresponding respectively to the first and second channel signals (21); a central processing unit receiving the first and second output signal values from the optical detection unit (23); and an automatic power control unit (function performed by "light beam power compensation circuit" of element 4) adjusting the first channel signal value to maintain the first output signal value equivalent to a first reference signal, according to the first reference signal, which is a reference signal of the first channel signal input from the central processing unit, and the first output signal input from the optical detection unit, and outputting the adjusted first channel signal value (done by element 43 as explained in column 6, line 45 - column 7, line 2) to the optical emission unit driving unit (44), wherein the central processing unit outputs the second channel signal to the optical emission unit driving unit to control the second output signal value (shown as element 8 in figure 2). Yoshikawa does not but Wang et al. teaches the apparatus that stores in the memory (function performed by the microprocessor of element 42 of figure 3) a pair of input/output values of the first reference signal value and the corresponding first output signal value as well as a pair of input/output values of the second channel signal value and the corresponding second output signal value (necessary to perform function of element 105 of figure 5), and refers to a linear function (see figure 6) reflecting a relation between the pairs of input/output values stored in the memory and determines the first reference signal value S1 and the second channel signal value S2 (necessary to perform function of elements 106 and 107 of figure 5), so as to record information on an inserted disc. It would have been obvious to one of

ordinary skill in the art at the time of the invention to include the concept of the given relationships and functions that utilize memory as taught by Wang et al. into the system of Yoshikawa. This would serve the purpose of increasing the stability of output laser power control (paragraph 0013 of Wang et al.).

Regarding claim 2, Wang et al. teaches in paragraph 0030 the method, wherein the inputting in the optical emission unit driving unit comprises: determining a ratio R ("difference amount") of the second output signal value to the first output signal value for a particular disc type (107); determining an optimum value T1 of the first output signal according to the disc type (X1); determining a linear function F1 ("first function") reflecting a relation between the first reference signal value and the first output signal value according to input/output signals obtained in the obtaining the pairs of first reference signal values, to determine the first reference signal value S1 corresponding to the optimum value T1 of the first output signal according to the linear function F1; determining the second output signal value T2 according to the optimum value T1 of the first output signal and the ratio R ("deviation function"); and determining a linear function F2 reflecting a relation between the second channel signal value and the second output signal value according to the signal values obtained in the obtaining two or more pairs of second channel signal values, to determine the second channel signal value S2 corresponding to the second output signal value T2 (part of "first function").

Regarding claim 4, Wang et al. teaches in paragraph 0030 the method, wherein the obtaining two or more pairs of second channel signal values comprises: inputting

the second channel signal (Y2) in a state where the first channel signal (Y1) is already input to the optical emission unit driving unit; and determining as the second output signal value the value obtained by subtracting the first output signal value resulting from the first channel signal from the output signal value measured by the optical detection unit, to obtain two or more pairs of input/output values based on the determined second output signal value ("deviation function" based on "difference amount").

Regarding claim 5, Wang et al. teaches the method as claimed in claim 2, wherein: the obtaining two or more pairs of first and/or second channel signal values comprise obtaining three or more pairs of signal values to find two or more periods divided by the pairs of signal values (different values shown in figure 6); and the determining linear functions F1 and F2 comprises determining the linear functions F1 and F2 for respective periods and determining the value S1 of the first reference signal and/or the value S2 of the second channel signal (shown in figure 5 and explained in paragraph 0030).

Regarding claim 7, Wang et al. teaches in figure 3 the apparatus further comprising a database unit storing data including a ratio of the second output signal value to the first output signal value, which varies from disc type to disc type (part of "microprocessor" of element 42), and an optimum first output signal value, wherein the central processing unit determines a ratio R of the second output signal value to the first output signal value for particular types of the inserted disc by referring to the database unit (figure 7), determines an optimum value T1 of the first output signal value for the particular disc type, determines a linear function F1 reflecting a relation between the first

reference signal value and the first output signal value according to the pairs of input/output values of the first reference signal value and the first output signal value stored in the memory to determine the first reference signal value S1 corresponding to the optimum value T1 of the first output signal (figure 6), determines the second output signal value T2 according to the optimum value T1 of the first output signal and the ratio R, and determines a linear function F2 reflecting a relation between the second channel signal value and the second output signal value according to the pairs of input/output values of the second channel signal value and the second output signal value stored in the memory to determine the second channel signal value S2 corresponding to the second output signal value T2 (figure 7).

Regarding claim 8, Wang et al. teaches in the apparatus, wherein the optical emission unit driving unit receives the first and second channel signals together (necessary to perform the function of element 105 of figure 5) to drive the optical emission unit, and wherein the central processing unit determines as the second output signal value the value obtained by subtracting the first output signal value resulting from the first channel signal from the output signal value of the optical emission unit (necessary to perform the function of elements106 and 107 of figure 5).

Regarding claim 9, Wang et al. teaches in figure 3 the apparatus further comprising an amplification unit (49) receiving the output of the optical detection unit (from 50) and outputting the received output to the central processing unit (42).

Regarding claim 10, Wang et al. teaches the method as claimed in claim 7, wherein the central processing unit finds two or more periods divided by the pairs of

input/output values by obtaining three or more pairs of input/output values of the first channel signal values and the first output signals (different values shown in figure 6), and three or more pairs of input/output values of the second input signal values and the second output signals, and determines linear functions F1 and F2 for respective periods to determine the first input signal value S1 and/or the second input signal value S2 (shown in figure 5 and explained in paragraph 0030).

Regarding claim 12, Wang et al. teaches a computer-readable medium (necessary for microprocessor of element 42 of figure 3) having embodied thereon a computer program executing instructions to: input pairs of first and second channel signal values to an optical emission driver (Y1 and Y2 of figure 6); optically detect first and second output signal values (X1 and X2 of figure 6) of an optical emission unit resulting from the inputted first and second channel signal values; determine a first target reference signal value and a second target reference signal value of a first reference signal and a second reference signal from a linear relationship of the first and second channel signal values and the first and second output signal values (done in element 105 of figure 5); and adjust the first and second reference values controlling the first and second channel signal values to the first and second target reference values, thereby maintaining the first and second output signal values at first and second optimal output signal values (done in element 108 of figure 5).

Regarding claim 13, Wang et al. teaches in paragraph 0030 a method of controlling power in an optical device having an optical emission driver driving an optical emission unit, comprising: inputting a pair of first channel signal values (Y1) and a pair

of second channel signal values (Y2) to the optical emission driver; optically detecting first output signal values (X1) and second output signal values (X2) from the optical emission unit resulting from the pairs of first channel signal values and second channel signal values; determining a first target reference value of a first reference signal and a second target reference value of a second reference signal based on a linear relationship of the first and second channel signal values and the first and second output signal values (done in element 105 of figure 5); and adjusting the first and second reference signal values to the first and second target reference values, thereby maintaining the first and second output signal values at optimal signal levels (done in element 108 of figure 5).

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Douglas 6,762,575.

Regarding claim 14, Yoshikawa teaches in figure 4 an apparatus controlling optical recording power, comprising: an optical emission driver (44) producing a driving signal from first (part of output of element 431) and second channel signals (part of output of element 431); an optical emission unit (1) receiving the driving signal to produce an output signal; an optical detection unit detecting the output signal (3); a central processing unit outputting first and second reference signals (R.REF and W.REF); and a power control unit adjusting the first and second channel signals to maintain the output signal at an optimal level by comparing (done by element 431) the first and second reference signals to the detected output signal (done by element 4), and the central processing unit (9) further outputs an overdrive signal directly inputted to

the optical emission driver (42). Yoshikawa does not but Douglas teaches that the first and second reference signals comprise signals generated by a closed loop and the overdrive signal comprises a signal generated by an open loop (column 1, line 46-column 2, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of different signals generated by a closed loop versus an open loop as taught by Douglas into the system of Yoshikawa. The motivation would be to easily move the beam at a desired speed, even if the speed is very slow (column 1, lines 51-53 and column 2, lines 1-4 of Douglas).

Allowable Subject Matter

4. Claims 11 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 11 and 16 are allowed over the prior art because of the references cited in the record, considered in combination or alone, fail to suggest or fairly teach the given offset erase control signal of claim 11 or the given method of determining a driving signal as claimed in claim 16.

Response to Arguments

5. Applicant's arguments filed 9/29/06 have been fully considered but they are not persuasive. Regarding claim 14, applicant states that Yoshikawa in view of Douglass does not teach "that the central processing unit further outputs an overdrive signal directly inputted to the optical emission driver such that the first and second reference signals comprise signals generated by a closed loop and the overdrive signal comprises a signal generated by an open loop" as recited in the amended claim 14.

The examiner disagrees because Douglas clearly shows the signals that should be generated in a closed loop and an open loop in the given section, along with the reasons for each.

Regarding claim 1, applicant states that Yoshikawa in view of Wang does not teach "the memory stores certain data used to create linear functions" nor that "a relation between the signal values exhibits a linear function" as recited in the claim.

The examiner disagrees. In figure 6 and paragraph 0030, Wang et al. shows a linear relationship between the channel signal values ("control signal") and output signal values ("output power test values"). The two graphs (elements 56 and 57 of figure 6) show the different channels and outputs as having linear functions.

Regarding claim 5, applicant states that Yoshikawa in view of Wang does not teach "a linear function reflecting a relation between the pairs of input/output values stored in the memory" as recited in the claim.

The examiner disagrees for the same reasons stated above.

Regarding claims 12 and 13, applicant states that Yoshikawa in view of Wang does not teach "a linear relationship of the first and second channel signal values and the first and second output signal values" as recited in the claim.

The examiner disagrees for the same reasons stated above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
10/17/06

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